

Questions for the model building exercise

Q1:

In groups of two build two di-peptides - make sure that you build L-amino acids

Each group will be give a piece of paper with the assigned di-peptides
(Don't show the paper to the other groups)

Once you have build the di-peptide then swap di-peptides with group
Group+1 and write down the one and three letter codes for di-peptide:

Group	Di-peptide 1		Di-peptide 2	
	1-letter	3-letter	1-letter	3-letter
1				
2				
3				
4				
5				

Q2: Once the rotation above is done and you have your own di-peptides.

Connect the two di-peptides such that they are in a beta-strand conformation

Q3:

What is the difference between a beta-strand and a beta-sheet.

What atoms form hydrogen bonds in a beta-sheet

Q4:

Draw a schematic representation of the two types of beta-sheets. Use an arrow to indicate a beta-strand.

Q5:

Draw a di-peptide on paper with sidechain indicated with R

What are the names for the 4 backbone atoms

Write 1-letter codes for amino acids in these groups:

- Hydrophobic
- Acidic
- Basic
- Aromatic
- Special amino acids

NB ! There may be an overlap of aa between the groups

Q6:

Build an alpha-helix composed of 10 Alanines

What is the hydrogen bonding pattern

What is the distance between CA(1) and CA(10) – use a ruler. Rise/aa ?